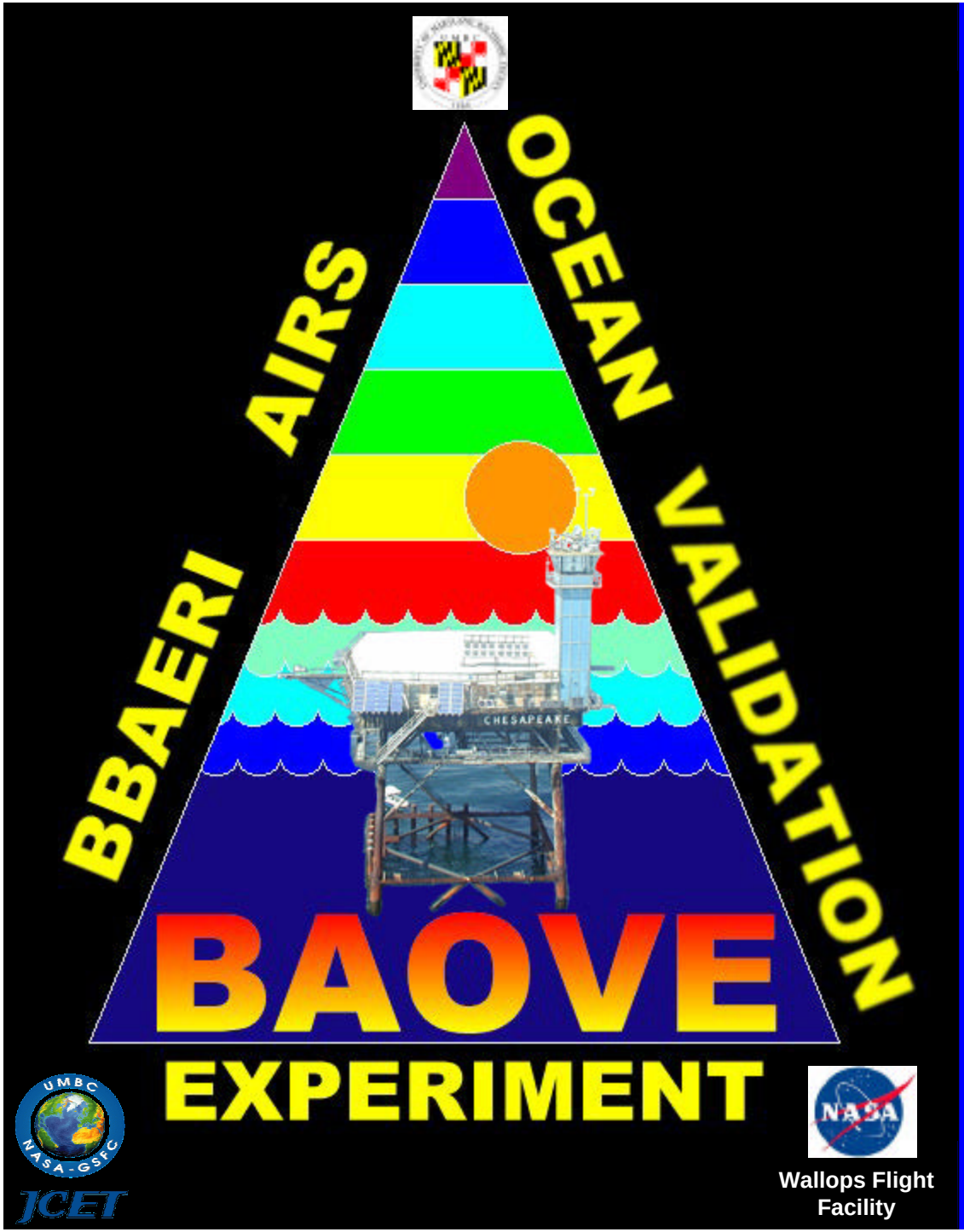


W. Wallace McMillan

Assistant Professor of Physics
University of Maryland Baltimore County

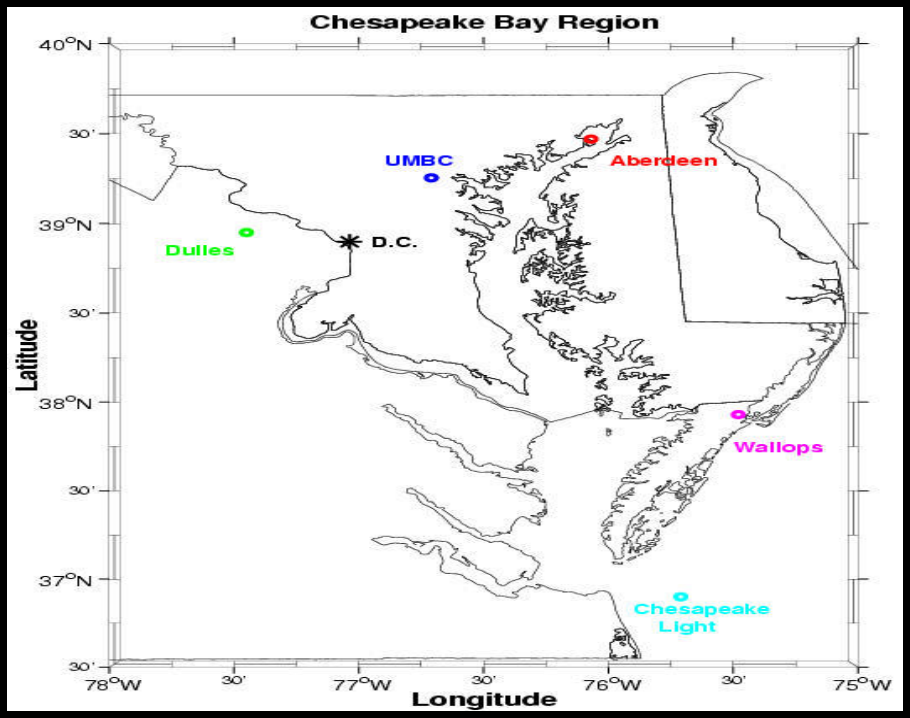
Ray Hoff, UMBC
Frank Schmidlin, NASA WFF
Steve Platnick, UMBC/JCET

Why do BAOVE?

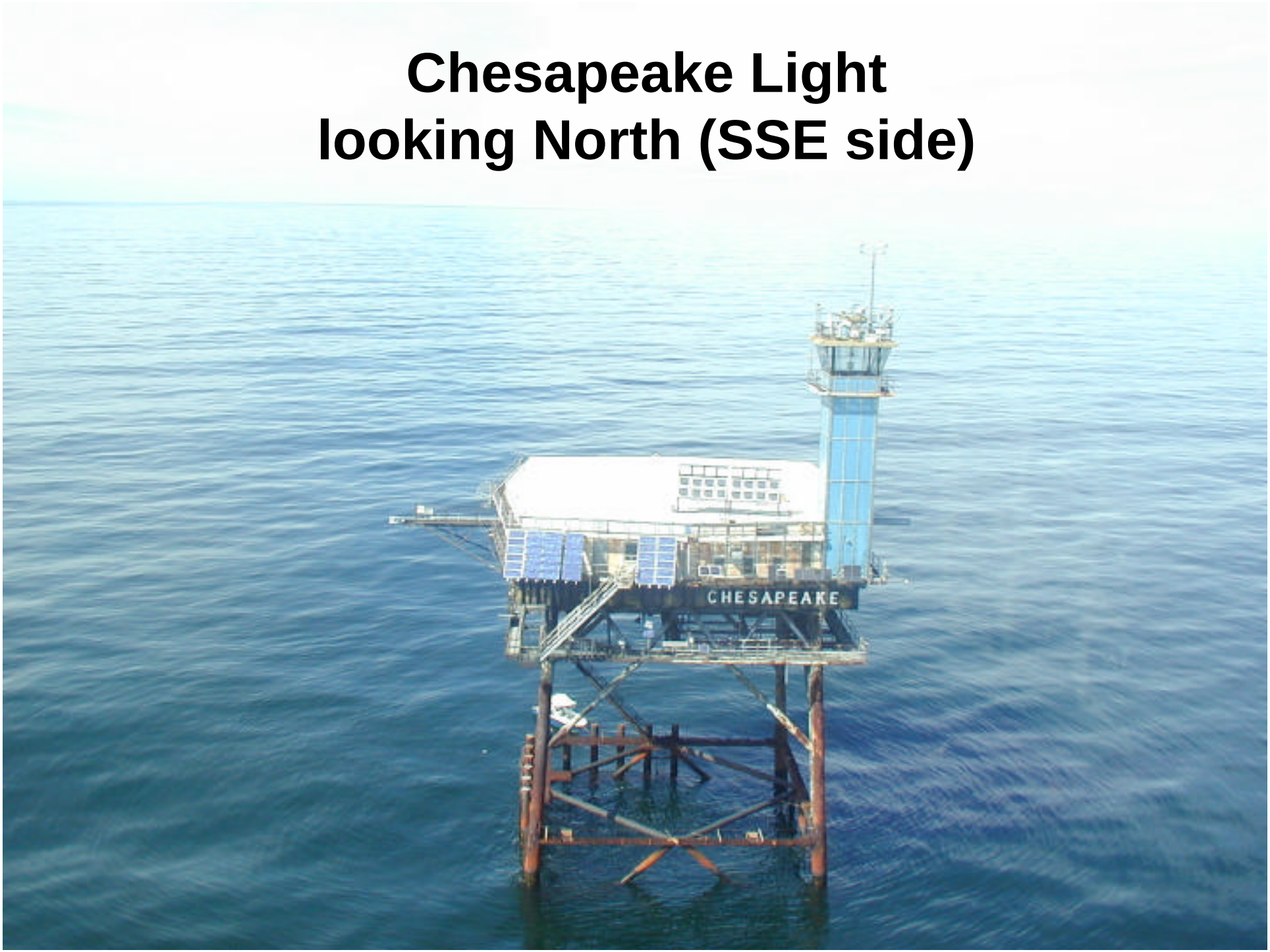
- **Ocean provides uniform surface emissivity ideal for validation of AIRS Forward Model**
- **First AIRS Forward Model validation data required by launch + 5 months to impact first two years of AIRS processing**
- **Years 2 and 3 provide for product validation:**
  - **T(p)**
  - **H_2O(p)**
  - **SST**
  - **cloud-clearing**
  - **trace gases**

Where is BAOVE?

- Chesapeake Light USCG lighthouse platform
- 25 km due east of Virginia Beach, VA
- Close enough for deployment from UMBC
- Far enough offshore for water only AIRS FOV

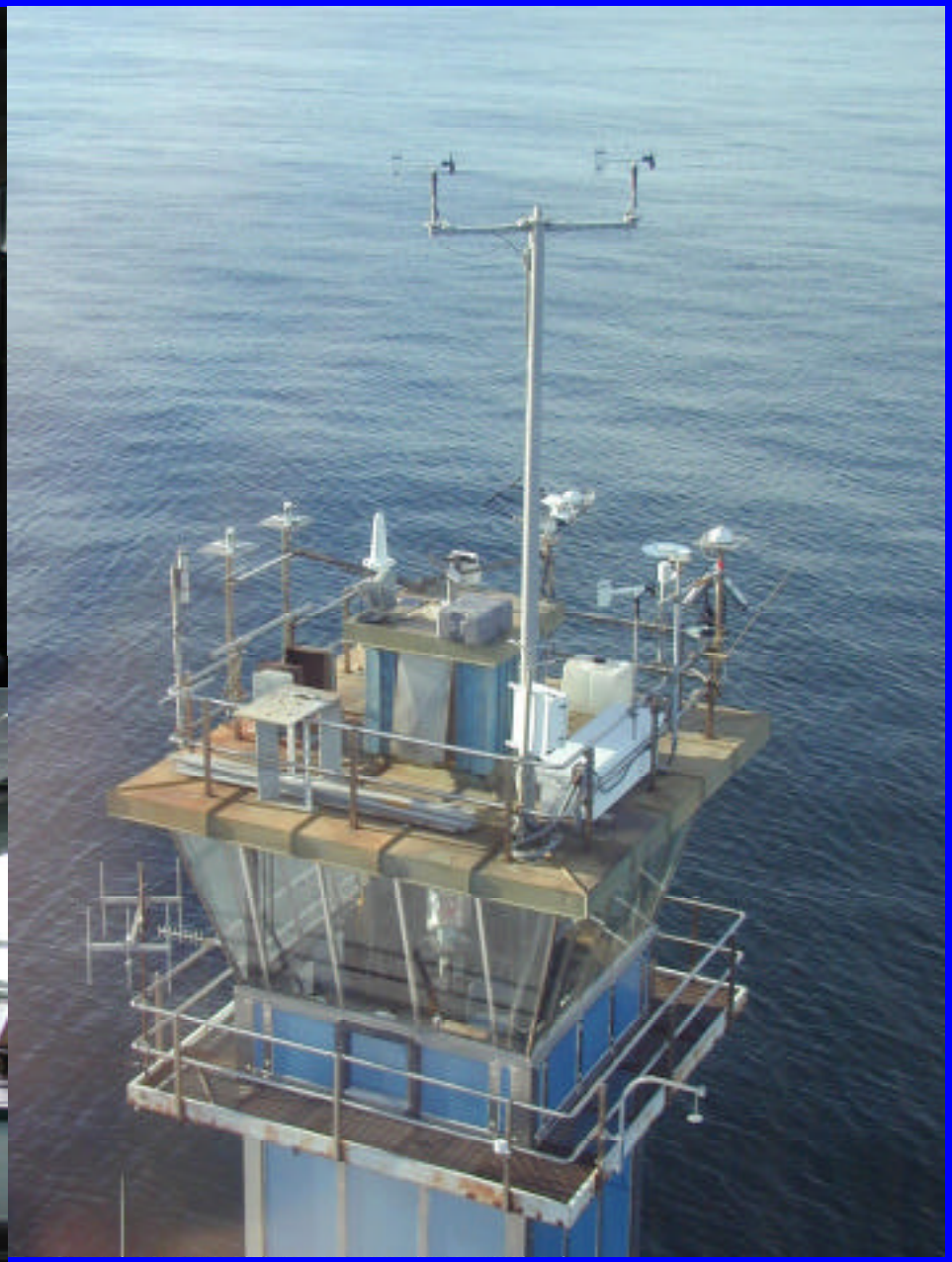


Chesapeake Light
looking North (SSE side)



Chesapeake Light

- **NOAA NDBC instrumented site:**
  - **Full meteorological instruments including:**
    - **sea state**
    - **water temperature**
- **NOAA GPS total precipitable water**
- **Primary CERES Ocean Validation site:**
  - **CIMEL, shadow-band, pyranometers, etc.**
  - **Vaisala sonde launch capability**
  - **Wireless network connection to mainland**
- **Used for CLAMS Experiment summer 2000**
- **Facilities to sleep 6**



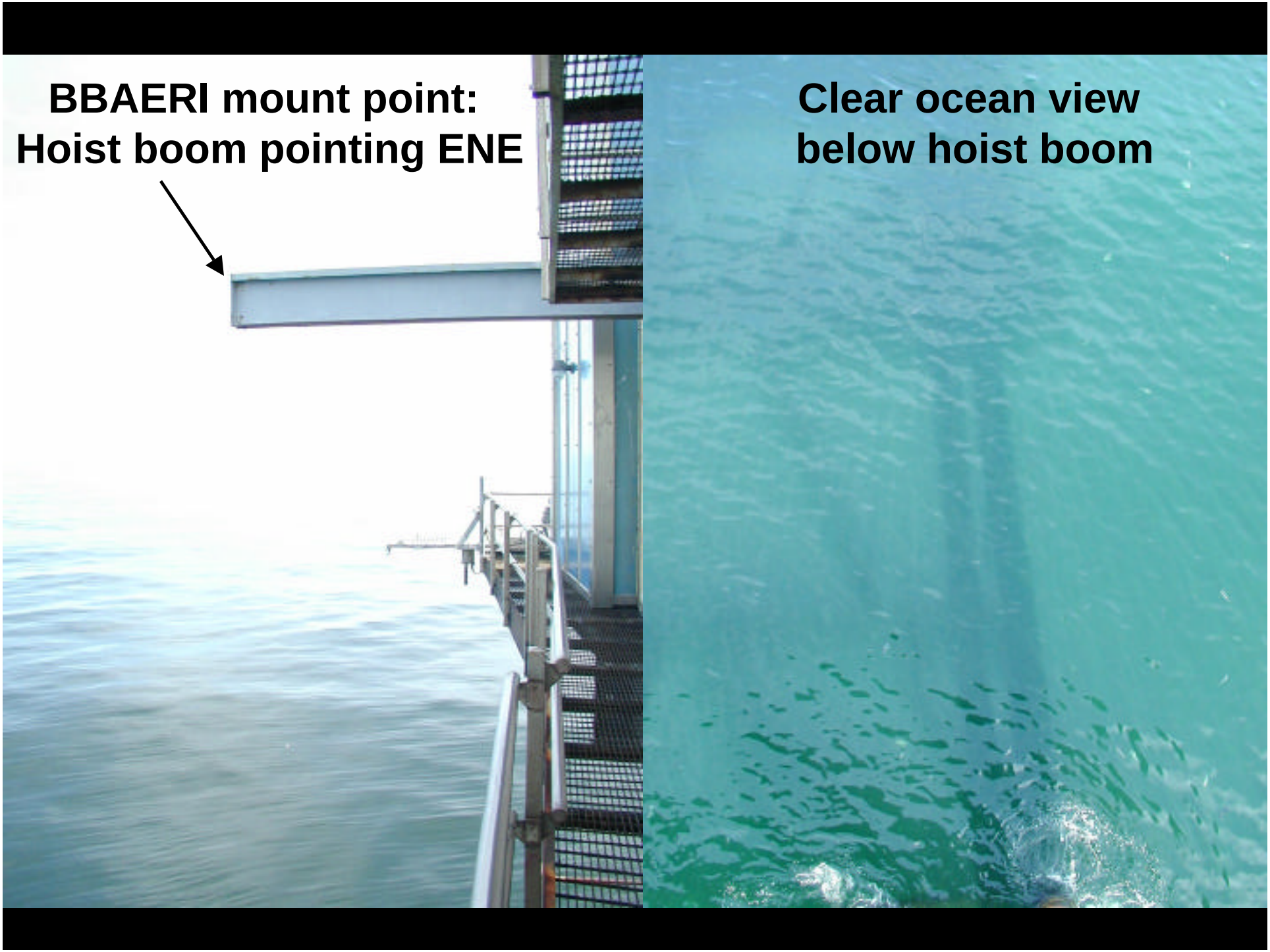
CERES and NOAA instruments

BAOVE Instruments

1. **BBAERI: Baltimore Bomem Atmospheric Emitted Radiance Interferometer**
   - First commercial prototype AERI
   - In routine operation at UMBC
   - Radiometric validation *vs.* UW AERI-00
2. **VIZ/Snow-white dew-point GPS radiosondes**
   - Frank Schmidlin, NASA Wallops
3. **ELF: Elastic Lidar Facility**
   - developed by Ray Hoff, UMBC
4. **MODIS data for sub-AIRS pixel variability**
   - Steve Platnick, MODIS team, UMBC/JCET

BBAERI

- **T(p), H_2O(p) from surface to 800 - 700 mb** using UW AERI retrieval code
- **SST in nadir**
- **Day/night**
- **Every 10 min**
- **Stirling cooled**
- **CO and O_3**
  - **PBL**
  - **Free trop?**


BBAERI mount point:
Hoist boom pointing ENE
Clear ocean view
below hoist boom

BAOVE Radiosondes

- VIZ/Snow-white dew-point GPS radiosondes
  - Co-I: Frank Schmidlin, NASA Wallops, assisted by UMBC graduate students
  - 30 launches budgeted in Year 1
  - Primary launches during clearest skies and AIRS overpass
  - Cloud clearing validation supported as requested and supplies allow

- Dual Vaisala/Viz-Snow-white launches with CERES collaboration during best conditions.

ELF

- Elastic backscatter lidar
- Cloud detection including cirrus
- Will be validated against GSFC SRL
- PBL and free troposphere aerosol profiles
- Day/night profiles

MODIS on *Aqua*

- Access to Chesapeake Light granules
- Investigate sub-AIRS pixel heterogeneities
- Qualitative intercomparison, then…
- Quantitative intercomparison with SST, etc.

When is BAOVE?

- First deployment between L+60 and L+90 days
  - When JPL says AIRS is stable, we deploy!
  - Duration: up to 2 months (2-week shifts)
    - Until we get good validation data
    - Or we run out of $
  - Objective: Clear sky Forward Model Val
- Years 2 and 3:
  - ~ 3, two-week deployments per year
  - Spread across season/climatic conditions
  - Forward Model evaluation
  - Product validation

BAOVE Deliverables

- Delivery 1-2 weeks from data collection
- T(p): blended from BBAERI and radiosonde
  - BBAERI gives temporal/spatial variability
  - Radiosonde gives mid-upper trop and high vertical resolution
- H_2O(p): blended from BBAERI and sondes
- cloud flag(p): ELF
- aerosol backscatter(p): ELF
- SST: BBAERI nadir views
- trace gases: BBAERI (Years 1, 2, and 3)

BAOVE Needs from AIRS

- When do we first deploy? L+60 or L+90?
- AIRS overpass predictions
  - Not just Nadir overpasses
  - Off Nadir useful to improve statistics
  - Need to know water only lighthouse FOV's
  - Radiosondes for clear overpasses!
- What data format is required for delivery?
- We desire access to AIRS spectra and retrieved products from overpasses.

mcmillan@umbc.edu

Graduate students at the lighthouse